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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,677	12/17/2003	Yun Bok Lee	8733.977.00-US	4107
7590	06/30/2004		EXAMINER	
Song K. Jung MCKENNA LONG & ALDRIDGE LLP 1900 K Street, N.W. Washington, DC 20006			FERNANDEZ, KALIMAH	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/736,677	LEE ET AL.	
	Examiner	Art Unit	
	Kalimah Fernandez	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____  | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8, 10 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat No 5,814,194 issued to Deguchi et al.
3. Deguchi et al disclose a holder (3) supporting a substrate (see fig. 1).
4. Deguchi et al disclose an ion beam source that is a predetermined distance from the substrate and inclined to be substantially parallel with the substrate and that irradiates the substrate with an ion beam (see fig. 1).
5. As per claim 2, Deguchi et al disclose an ionizer (15); a discharger (11); and an accelerator (18).
6. As per claims 3-5, Deguchi et al disclose the accelerator, the ionizer and the discharger being substantially parallel with the substrate (see fig. 1).

7. As per claim 6, Deguchi et al disclose the ionizer (15) inclined at an angle substantially different from the accelerator and discharger (see fig.1).
8. As per claim 7, Deguchi et al disclose the substrate having an alignment layer (24) (col.6, lines 14-19).
9. As per claim 8, Deguchi et al disclose the ion beam is formed from an inert gas Ar (col.3, lines 64-66).
10. As per claims 9-10, Deguchi et al disclose the ion beam is discharged from the ion source at an angle with respect to a direction normal to the ion beam source and the angle is identical to an incline angle of the substrate (see fig. 1).
11. As per claim 14, Deguchi et al disclose supporting a substrate with an alignment layer (24) at a first angle and producing ion beams to irradiate the whole substrate with ions (see col.3, lines 7-36).
12. As per claim 15, Deguchi et al disclose ionizing an injected gas into ions and electrons (col.4, lines 4-5; col.5, lines 13-29); discharging the ions as the ion beams via discharger (11); and accelerating the discharged ion beams towards the substrate (col.4, lines 5-7).
13. As per claim 16, Deguchi et al disclose the injected gas is Ar (col.3, lines 64-66).

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 11-13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deguchi et al and in view of US Pat No 6,238,582 issued to Williams et al.

16. Deguchi et al disclose the claimed invention except for the ion beam irradiates the substrate at the recited angle ranges.

17. However, Williams et al teach the desirability of varying the irradiation angle (see fig.1; col.2, lines 26-40; col. 3, lines 45-47; col.8, lines 38-50).

18. It would have been obvious to an artisan having ordinary skill at the time of the invention to incorporate the teachings of Williams et al into Deguchi et al since Williams et al teach increased reliability and reproductivity (col.3, lines 45-47).

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 571-272-2470. The examiner can normally be reached on Mon-Tues 6:30-3:30; Wed-Thurs 8-5 and Fri.9am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kf



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